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Founded 1919

March
1957

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Southwestern MEDICINE

VOL. XXXVIII MARCH, 1957 No. 3

EDITORIAL

Here We Co Again!

By Robert B. Homan, Jr., M. D., El Paso

The wheels of the new 85th Congress of the United States are now grinding away. The organization of this Congress is now complete, and, as of today, (2-11-57), the complete roster of the Senate and House Committees are at hand. Again, as in the last two years of the 84th Congress, we have a Republican Administration and Democratic control of the House and the Senate. This seems to be of little consequence, as far as the practice of medicine is concerned, for Mr. Eisenhower and his party continue to act like new-dealers in health matters — as well as in other fields.

High Level Expenditures

The President's budget message to Congress placed expenditures at the highest peace-time level in history. It was this message which exhorted his Secretary of the Treasury, Mr. Humphreys, to predict "a depression that will *curl* your hair" — if the government continues on its present fiscal binge! It was this message and a so-called "tight money" policy (of increasing "interest rates") that has brought about a sharp decline in the stock market — evidenced by the Dow-Jones averages.

The writer endorses the "tight money" policy as a means of controlling the dangerous inflation which grips our country today. I also believe that a "tight money" policy would be most financially helpful if it were also applied to government operation and expenditure. So long as the Federal Government merrily throws your tax money away, controls of personal, business or corporation credit and expenditures will have little, if any, effect on Mr. Humphreys' "hair curling".

At the risk of being repetitious, may I again call your attention to the fact that your Government has nothing to spend except that money which it gathers from you and your fellow countrymen through taxation?

Bulging At Seams

The administration's requests to Congress to finance the government's health and medical activities for the next year are reprinted on page 172 of this issue of SOUTHWESTERN MEDICINE. Literally, the central government's medical expenditures are bulging at the seams! These represent health and medical care programs at the national level which are already in existence under the law.

In addition, during the first seven days of the present Congress, 140 health-medical bills of significance have been introduced or re-introduced (this is a *new* Congress) — any and all of which require, if passed, further government expenditure in the health field! Included are bills providing for federal aid to medical, dental and osteopathic schools (providing construction and equipment grants), and a new proposal for national health insurance!

Identical Bills

Senator Murray, of Montana, one of the original sponsors of the 14-year-old "socialized medicine" legislation, and Representative Dingell (Michigan), the son of one of the original co-sponsors of the Wagner-Murray-Dingell bill, have introduced identical bills in the Senate and House — S.844 and H.R.3764.

Many of the provisions of the original bill have already been passed — piece-meal — including medical research grants, Hill-Burton act and expansions, medical aid to rural and shortage areas, grants for maternal and child health, more state grants for health work, education of health personnel, etc. The present bill provides for a contributory system of health insurance for the working population similar to social security.

The worker and his family would be eligible for preventive and diagnostic exams, laboratory and X-ray services, hospitalization up to 60 days per year, dental services, more expensive drugs, special appliances and eye-glasses, all for a tax not to exceed $90 per year plus an equal contribution by the employer. Of course, the government is authorized to ask Congress for additional funds as needed.

Here we go again — anybody can catch the brass ring — right in his good eye.

Specific Administration Budget Requests For Health Programs

(For Fiscal Year 1958, Which Starts on July 1, 1957.)

The following table presents specific requests made by the Eisenhower administration to finance major U. S. health and medical activities for the next fiscal year. First column shows what the programs are expected to cost in the current fiscal year and the second the new requests. Some programs that will require new legislation — such as aid to medical schools — are not carried in the budget but will be added later. Military medical expenses listed do not include construction or alteration of facilities.

	Estimated Fiscal 1957	Requested for Fiscal 1958
Food and Drug Administration	$ 7,979,000	$ 10,554,500
Office of Vocational Rehabilitation	42,110,000	50,945,000
Children's Bureau	41,183,000	43,654,000
Public Health Service	534,661,093	557,408,455
Venereal Disease Control	4,195,000	4,415,000
TB Control	6,660,000	7,000,000
Communicable Disease Control	5,750,000	6,260,000
Sanitary Engineering activities	9,000,000	13,063,000
Grants for Waste Treatment Plants	50,000,000	50,000,000
Hill-Burton	125,000,000	121,200,000
Hospitals and Medical Care	39,011,000	44,399,000
Indian Health Activities	38,096,545	43,311,545
Construction of Ind. Health facilities	8,762,000	5,800,000
NIH (Gen'l research and services)	12,122,000	14,026,000
Nat'l Cancer Institute	48,432,000	46,902,000
Mental Health Activities	35,197,000	35,217,000
Nat'l Heart Institute	33,396,000	33,436,000
Dental Health activities	6,026,000	6,430,000
Arthritis & Metabolic Diseases	15,885,000	17,885,000
Allergy and Infectious Diseases	13,299,000	17,400,000
Neurology & Blindness activities	18,650,000	18,887,000
Nat'l Library of Medicine	1,004,638	1,450,000
Veterans Administration	797,173,000	831,000,000
Outpatient care	82,638,000	79,000,000
Inpatient care	662,900,000	702,000,000
Hospital & Domiciliary Facilities	51,635,000	50,000,000
Atomic Energy Commission (Med.)	31,598,000	36,000,000
Civil Defense Administration	41,790,000	62,000,000
St. Elizabeth's (Wash. D. C.)	2,737,000	3,265,000
Defense Department	306,032,000	426,611,000
Army	144,038,000	158,200,000
Navy	61,100,000	87,200,000
Air Force	76,894,000	108,416,000
Medicare	24,000,000	62,795,000

Reprinted from AMA Washington Letter 85-3, January 18, 1957

CURRENT THERAPY

Prophylaxis of Recurrent Rheumatic Fever*

By Jack A. Bernard, M. D., F. A. C. P., El Paso

Recurrent rheumatic fever prophylaxis has been outlined in Public Health Reports in April 1955 as follows:

1. All individuals with established history of rheumatic fever or chorea, or definite evidence of rheumatic heart disease, should be given continuous prophylaxis.

2. Begin when the patient is first seen, whether in the active stage or not.

3. Continue the prophylaxis throughout life, without intermission during the summers.

4. Oral sulfadiazine dosage is recommended each morning 0.5 to 1.0 grams, the smaller dose for children under 60 pounds.

5. Oral penicillin is recommended in the dosage of 200,000 to 250,000 units before breakfast on an empty stomach.

6. Parenteral penicillin dosage (preferable to the oral dosage of either sulfadiazine or penicillin because it does not rely on patient co-operation), is 1,200,000 units of benzathine penicillin G intramuscularly monthly.

Prophylaxis Should Be Maintained

It should be emphasized that sporadic and even epidemic streptococcal infection can occur at any season, so prophylaxis should be maintained throughout the year.

Sulfadiazine is easily administered, well absorbed, has proved effectiveness, and is inexpensive. A sulfadiazine tablet costs five cents, whereas a penicillin tablet costs twenty to forty cents. Its major limitation is that it is bacteriostatic rather than bactericidal and is therefore suppresive only, and does not thereby eradicate the streptococcal carrier state. Serious toxic reactions to the small doses used are surprisingly uncommon.

Mild skin eruptions occur in 0.5 per cent and blood reactions occur in 0.01 per cent. Do not use sulfadiazine for intercurrent infection and be alert in such instances for granulocytopenia. Serious or fatal reactions have occurred in such cases where granulocytopenia was overlooked and the sulfadiazine was increased for intercurrent infection.

*This is the second of a series of articles on Rheumatic Fever by Dr. Bernard.

Oral Penicillin Effective

Oral penicillin is highly effective in eradicating the group A streptococci and in preventing the streptococcal infections. Serious toxicity is rare. It should be emphasized that there has not been reported a proved instance of penicillin-resistant group A streptococci associated with human infection. Therefore the development of penicillin resistant group A streptococci is *not* a problem!

The major disadvantage of daily oral prophylactic penicillin is that ambulatory patients are apt to forget the tablets regularly. It has been shown that a single injection of 1.2 million units of repository penicillin (benzathine penicillin) results in detectable penicillin serum levels for three to four weeks.

The site of injection tends to be more painful with the use of this compound than with other forms of procaine penicillin. Hypersensitivity reactions have thought to have been more common with this form of penicillin but others have reported that they are about the same as with the parenteral use of other forms of penicillin.

Penicillin Indicated

In the prevention of initial attacks of rheumatic fever prompt and adequate penicillin for streptococcal infections is indicated. It has been shown that the attack rate of rheumatic fever following streptococcal pharyngitis in the general population is about three per cent. In rheumatic fever patients the attack rate is about 50 per cent.

The earlier penicillin is instituted, the more effective is the prevention of subsequent rheumatic fever. There is some evidence that treatment instituted even as late as nine days after the onset of symptoms may still exert some favorable prophylactic effect upon the incidence of rheumatic sequelae (by eradicating streptococci deep in the tonsillar tissue).

Special Techniques

In a recent study, it has been shown that strept may be isolated six weeks after a streptococcus illness by special bacteriological techniques. Treatment of a streptococcal carrier on the ninth day following his illness showed a decreased incidence of the carrier state on the thirteenth day. Also, the antistreptolysin O titer was reduced by penicillin therapy as late as the ninth day.

(Continued on Page 176)

THE PRESIDENT'S COLUMN

The Dilemma of a Great Profession

By Celso C. Stapp, M. D., El Paso

During the past twenty five years we have seen some of the most remarkable strides in the advancement of scientific medicine and also to some extent in the art of medicine. One would think that this is enough to encourage the youth of our nation to want to take up this noble profession above all other vocations.

Sadly, we must admit, this is not the case. The deans of our medical schools inform us that there are fewer applicants and that the quality of the applicants has begun to decline. There are many reasons for this; and to try and elicit all of them would be impossible. There are, however, several outstanding factors which are quite shocking. None of these are new to us but they stand repeating and looking into more and more.

Other Fields

In this time of prosperity it is very easy for an intelligent young man to enter some other field of endeavor than medicine with greater financial gain. This may be done without having to go through the long years of school and training.

This, of itself, is not a complete deterrent, if it were not for the fact that the prestige of the profession has been damaged in many ways.

For one, many articles are appearing in lay magazines by inference and directly condemning the profession. It is rather apparent that there are about equal numbers of articles praising the profession as there are damning the practice of medicine.

An individual may read the articles praising the profession and one with some luscious bit of gossip or condemnation, and with rare exception he will remember the one which has not been complimentary.

Besides this, there is some directly erroneous information written. Wide publicity is given to any suits involving doctors. This incites other suits and threats of suits, some of which are attempts to blackmail the doctor for money in fear of suit. The practice of medicine has been molded by this into a partially defensive behavior in effort to prevent suits.

Great Deterrent

One of the greatest deterrents to the prospective student has been the threat of socialization. I am not only speaking of socialized medicine but the general socialization of our nation. With the advent of Medicare we have seen one of the greatest steps in socialization. This was done quietly by placing the profession in a stalemate with a gimmick. This Medicare was put in to reduce the number of doctors in the Services. It is now apparent that this will not happen. Medicare is now being tried out as an experiment; but as always it will go on and on. There will be many other groups of people who will be included before it is over. Within the structure we have a system for the destruction of American medicine as we now know it and our democratic form of living.

Little Wonder

It is little wonder that a truly ambitious young man does not want to enter medical school to become a part of the practice of medicine and to be caught in the net of governmental bureaucratic control. If you were starting into medical school today do you think that it would be worth it? As wonderful as our country is, do you not think that with the advent of socialism we are not laying the doom of our civilization.

In the history of our world it may be noted that very few civilizations have fallen to the doom of pestilance. Most have come from governmental decay. We do not have to have socialism in the form of cradle to the grave or any variety of the so-called "Welfare state".

Our country was built on hard work and the search for opportunity and not the encouragement of dependency

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PEDIATRICS

A Comparison Of "Symptomatic Treatment", Gamma Globulin, And Penicillin In The Treatment Of Scarlet Fever

Weinstein, L. & Potsubay, S. F., J. Pediat. 37:291, 1950

Penicillin is apparently the product of choice in treatment of scarlet fever. Gamma globulin produced rapid fading of the rash but, in contrast to penicillin, exerted little additional effect. Penicillin-G was employed intramuscularly in total daily dosage of 120,000 units, administered fractionally every three hours for ten days.

Edited by Andrew M. Babey, M. D., Las Cruces, N. M.

APHORISMS and MEMORABILIA

Miscellaneous Truths and Concepts

(continued)

66. "Little wonder that parents, unsure of themselves and uncertain of the meaning of their behavior, are unable to exert the direction and authority that a child expects from his parents and needs for his best development. Moreover, children sense the parental anxiety and unsureness and take on these feelings themselves." Harry Bakwin; *loc. cit.;* P. 229.

67. "Most of the mothers who are, at first, overly anxious about the problems of child rearing come, with time, to appreciate the hardiness of the human constitution and the strong drive toward normal development and, with their second and subsequent children, lose much of their early anxiety." Harry Bakwin; *loc. cit.,* P. 229.

68. "Probably the principal shortcoming of currently popular attitudes on child rearing is the failure to emphasize the personality attributes that parents and society at large prize most highly — namely, character." Harry Bakwin; *loc. cit.,* P. 230.

69. "I do not propose that the task of character building is in the province of the physician, and I should prefer to have it remain where I believe it belongs: in the home, the church and the school." Harry Bakwin; *loc. cit.,* P. 230.

Home Important

70. "Experience shows that children thrive best in a home atmosphere where they believe that their parents are sincerely fond of them, where they are accepted for what they are without undue pressure, where discipline is firm and consistent and where character building is fostered by example, by precept and by just reward for proper behavior. Given such a home, it matters little for the psychologic development of the child whether or not he is nurtured at the breast or by bottle, by self-demand or rigid scheduling, or whether toilet training is too early or too late." Harry Bakwin; *loc. cit.,* P. 230.

71. "It should be remembered that children are hardy creatures, and that they will take a great deal of pushing around without being harmed. The urge toward normal growth and development is strong." Harry Bakwin; *loc. cit.,* P. 231.

72. "The particular qualities that parents would inculcate in their children are, to a large extent, individual and personal. Some parents would emphasize in their children integrity of purpose, others humility, others kindness and generosity, and still others force of character and initiative. This is the parents' privilege — indeed, it is their duty." Harry Bakwin; *loc. cit.,* P. 231.

Physician Neurosis

73. "The neurosis of the physician practicing by himself is that he views with suspicion but strictly depends upon the large medical group that produces and controls the means and most of the material of his lifework." *New England Journal of Medicine;* Mar. 26, 1953; P. 564. Editorial.

74. "In medical schools there is a growing tendency to look upon those whose interests lie mostly in clinical medicine as distinctly 'old hat.' The feeling is increasing that everyone of merit should be doing research. The excellence of a medical school as a school now appears to be judged more by the papers issuing from it than by the quality of its teachers." Howard P. Lewis; *J. A. M. A.,* August 20, 1955; P. 1415.

75. "The modern management of advanced cancer places a moral obligation on the surgeon to see his patient through one way or another. The daily care of the patient requires the services of an able and sympathetic physician or of an institution skilled in the management of these problems, but unless the surgeon is somewhere in the background, as the strategist if not the tactician, the patient loses faith and courage, and his existence becomes a kaleidoscope of pain, despair and narcosis." J. Englebert Dunphy; *New England Journal of Medicine;* July 2. 1953; P. 23.

Misguided Surgeons

76. "... too often the conscientious but misguided surgeon performs a colostomy or a gastrostomy and gives thousands of cubic centimeter of blood to drag out a patient's tortured existence for a few odd days or weeks. The surgeon has no right to take the patient's life, but he is likewise under no obligation to employ fantastic measures to prolong it in the face of intolerable and clearly terminal disease." J. Englebert Dunphy; *loc. cit.,* P. 23.

77. "The falling-off of 'intelligence' with age is inexorable, and the sustained brilliance of some of our elder statesmen and professional men can be explained only by assuming that their 'intelligence level' was originally so high that even a considerable reduction leaves them well above the normal for the general population." P. D. Bedford & M. D. Leeds; *The Lancet;* August 6, 1955; P. 262.

"POINTERS"

From the Case Records of the Massachusetts General Hospital*—1953

1. "Contrary to an opinion that I once had, Cushing's syndrome can occur without any demonstrable osteoporosis." p. 32

2. "In this hospital, the radiologists refuse, and rightly so, to give x-ray treatment to a mediastinal mass until they know what it is. We have had a patient with a mediastinal mass that was treated by x-ray and later found to be tuberculous, with death due to miliary spread." loc. cit.; p: 74

3. "Tabes dorsalis is a frequent cause of erroneous diagnosis in surgery. Of 1000 patients with tabes dorsalis seen at Cook County Hospital about 10 per cent had been subjected to needless abdominal operations simply because the symptoms of tabes had mimicked those of an acute abdominal condition." loc. cit.; p. 114

4. "There are usually three types of gastric crises: one consists mostly of pain, the second mostly of vomiting, and the third and most common of both pain and vomiting." loc. cit; p: 114

Simulated Pneumo-Thorax

5. "Severe traumatic fracture of the spine is occasionally associated with rupture of the diaphragm and passage of hollow abdominal viscera into the chest, simulating pneumo-thorax." A Composite; loc. cit.; Jan. 22, 1953; p. 154

6. "Jaundice in severe congestive failure may be due to central necrosis of the liver." A Composite; loc. cit.; Jan. 29, 1953; p. 205

7. "Multiple metastases of a carcinoma of the prostate do not have to be accompanied by high acid phosphatase. The acid phosphatase can be normal, even when the metastases are in bone." loc. cit.; p. 252

8. "I do not think one can overemphasize the diagnostic importance of so-called spider angiomas—they usually mean long-standing liver disease except in the pregnant woman. It is true that spider angiomas have been demonstrated in infectious hepatitis, viral in origin, in the course of an acute attack, but that is unusual; almost always they strongly suggest the presence of progressive, continuing chronic intra-hepatic disease." loc. cit.; p. 342

Fibromas of Ovary

9. "... fibromas of the ovary may be associated with ascites and in still other cases with ascites and hydrothorax, the latter being examples of the Meigs-Cass syndrome. It is thought that the peritoneal fluid results not from peritoneal irritation by the tumor but by a transudation of fluid from the tumor itself. In cases of Meigs-Cass syndrome, the pleural fluid is apparently derived from the ascitic fluid by transmission through diaphragmatic lymph channels." loc. cit.; p. 473

10. "The cause of bone-marrow embolism is almost always a bone fracture and usually a major fracture; but often there is no evidence of a definite fracture, and Rappaport et al. believe that violent muscular contraction, such as may occur with a convulsion, may so injure a vertebra that cancellous bone marrow may be forced into the contiguous sinusoidal veins, becoming emboli. Bone-marrow embolism has also been observed in the lungs of patients who have had convulsions associated with tetanus and shock treatment in whom there was no evidence of an injury grossly." loc. cit.; p. 517

11. "Carcinoma of the body and tail of the pancreas can be an exceedingly silent disease manifested only by pain. In most recent series it has been stated that pain is the commonest introductory symptom for carcinoma of the pancreas. The pain usually bores through, straight to the back ... such patients can maintain their hemoglobin very well for quite a long time. The periumbilical node is consistent with carcinoma of the body or tail of the pancreas." loc. cit.; p. 696

12. "A negative intravenous pyelogram is against hypernephroma, but it does not rule it out entirely, since a small primary lesion can set up a large solitary metastasis." loc. cit.; p. 700

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*We are grateful to Dr. Benjamin Castleman, Editor of "Case Records" and Dr. Joseph Garland, Editor of "The New England Journal of Medicine" for permission to publish these excerpts. They will appear regularly and cover the years 1951 through 1955. — Andrew M. Babey, M. D.

Prophylaxis of Recurrent.....

(Continued from Page 173)

Finally, new cases of rheumatic fever were decreased by penicillin therapy as late as the ninth day. These findings suggest that the living streptococci are necessary for the development of rheumatic fever. For prevention of initial attacks of rheumatic fever or to prevent a recurrence of rheumatic fever, the dosage of penicillin for a streptococcal pharyngitis should be 300,000 units of penicillin intramuscularly daily for ten days or preferably 600,000 to 1.2 units of benzathine penicillin intramuscularly. The lower dosage of 600,000 has been recommended as less likely to cause toxic reactions.

Sulfonamids (which are bacteriostatic rather than bactericidal) are ineffective in the eradication of streptococci from the throat.

Index To Dr. Andrew M. Babey's Aphorisms

Because of the widespread interest in Dr. Babey's collections of Aphorisms and Memorabilia, the editors of SOUTHWESTERN MEDICINE are presenting annual indexes of the Aphorisms.

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MEETINGS

Dr. W. A. Jones Elected President of Texas District One Medical Association

Dr. W. A. Jones of El Paso was elected President of District One of the Texas Medical Association at the group's annual meeting in Pecos, Texas, February 12. Dr. E. W. Schmidt of Pecos was the retiring President.

Other new officers are Dr. William Lockhart, Alpine, Vice-President; and Dr. E. S. Crossett, El Paso, Secretary-Treasurer. Pecos was selected as the site for the 1958 annual meeting.

Born in Batesville, Arkansas, Dr. Jones received his M.D. from the University of Arkansas School of Medicine. He interned at Schempert Memorial Hospital in Shreveport, La., and took his residency in City Hospital in Washington, D. C., and the Highland Hospital in Ashville, N. C. His preceptorship was with Dr. Carl W. Rand of Los Angeles.

Three Years In Army

With the exception of three years in the Army Medical Corps, he was Chief of Neurosurgery in the Veterans Administration Hospital in Los Angeles over a 13-year period. He came to El Paso in 1949.

He is certified by the American Board of Neurosurgery and is a member of the Harvey Cushing Society, the Southern Neurosurgical Society and the International College of Surgeons.

Dr. W. A. Jones

Dr. Jones is a member of the Lions Club and the First Baptist Church. He and his wife have a son, 22, and a daughter, 21.

Speakers at the meeting were Dr. M. O. Rouse, Dallas, President of the Texas Medical Association, Lincoln Williston, Austin, executive secretary of the TMA, Dr. J. E. Miller and Dr. William Aronoff, both of Dallas, Dr. Willard W. Schuessler and Dr. R. F. Boverie, both of El Paso.

Clinical Pathological Conference

A clinical pathological conference was presented by the El Paso County Medical Society's Tumor Clinic.

Dr. Rouse emphasized in his talk that the U. S. has the best health standards in the world today and that it is the only major country that still maintains the private practice of medicine.

He cited statistics to show that the total health bill in this nation in 1955 was $12 billion and was only four per cent of national income. The $12 billion is broken down into $3 billion for hospitals, $3 billion for physicians, $1 billion for dentists and $5 billion for drugs. He said that the nation spends $8 billion for alcohol, $5 billion for tobacco, and $35 billion for national defense. The per cent paid physicians has declined 1.3 per cent from 1952 to 1955.

106 Million Insured

Dr. Rouse stressed that 106 million people in the U. S. out of a total population of 169 million are now covered by voluntary prepayment health and hospitalization insurance. He said everyone should have the Salk vaccine for complete polio immunization but that only 10 per cent of Texas population has been inoculated to date.

He announced that the Texas Medical Association for three months has been studying mental health facilities in Texas with the assistance of Dr. Francis G. Gertz of Chicago, Professor of Psychology at the University of Illinois School of Medicine. A report to the Texas legislature was scheduled, he reported.

Medicare Discussed

Speaking on "Medicare: Its Highlights and Its Long-Range Implications", Mr. Williston said that Medicare is certain to have a very important effect

upon medical and hospital care in the U. S. in the future and that the principles of the program reflect, to a large degree, the dramatic socio-economic trends which are affecting the practice of medicine today.

The complete text of Mr. Williston's remarks follow:

"The Dependent Medical Care Act was passed by the 84th Congress, and it became effective on December 7, 1956. This new law, for the first time, gives statutory authority to the federal government to continue what it has been doing for many years; namely, to provide medical care for dependents of servicemen. The expressed purpose of Medicare is to create and maintain high morale throughout the armed forces by providing an improved program of medical care for servicemen and their dependents. The most important new feature of this program is that it enables dependents of those in military service to be treated by doctors in private practice and to be hospitalized in civilian medical facilities.

"One of the foremost questions with which the physician in private practice is concerned is who is eligible for medical care in civilian facilities. For the most part, private practitioners will be rendering care to wives of active servicemen and to children under 21 years of age. It is true, however, the husbands of Waves, Wacs, and other servicewomen also are eligible. In addition, children of servicemen who are full-time students or those who are incapable of self-support because of physical or mental handicaps are eligible until they reach their 23rd birthday.

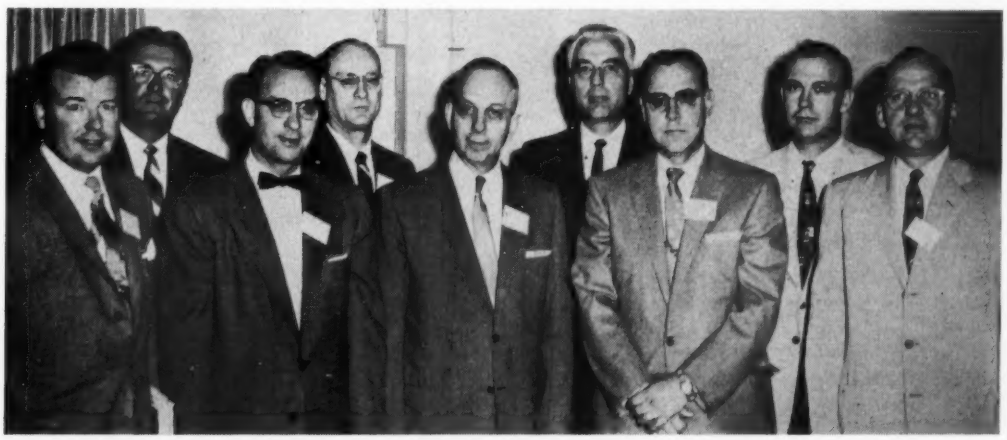
Choice of Facilities

"The Department of Defense has given these individuals a choice of medical facilities at the present time. They may select the doctor in private practice, or they may choose medical care in a facility of the armed forces or the U. S. Public Health Service. However, for dependents living with the serviceman, treatment at civilian facilities may be restricted in certain areas if the Commanding Officer rules that military medical facilities are not being utilized adequately.

"Civilian medical care to which dependents are entitled is quite broad. It includes acute medical and surgical conditions, contagious diseases while in the hospital, complete obstetrical and maternity care, 365 days of hospitalization, pre- and post-hospitalization services by the doctor for bodily injury or in connection with a surgical operation, acute emergencies of any nature, and diagnostic tests and procedures during hospitalization.

Limited Outpatient Benefits

"It should be emphasized that Medicare is a program which provides primarily for hospitalization and for professional services during the period of hospitalization. It does not permit, at government expense, medical care normally considered to be outpatient professional services. Certain limited outpatient benefits are included, nevertheless. They are treatment of bodily injuries, and diagnostic tests and procedures for the treatment of fractures, dislocations, and lacerations. In reporting the scope of this program, I believe it is important to note that there are



Left to right at the annual meeting of District One of the Texas Medical Association in Pecos, Texas, February 12, are Mr. Lincoln Williston, Austin, executive secretary of the Texas Medical Association; Dr. Maynard Hart, El Paso, moderator of a case presentation by the El Paso County Medical Society's Tumor Clinic; Dr. R. F. Boverie, El Paso, one of the speakers; Dr. E. W. Schmidt, Pecos, retiring president of District One of the Texas Medical Association; Dr. M. O. Rouse, Dallas, president, Texas Medical Association; Dr. Charles E. Oswalt, Jr., Fort Stockton, councillor for District One; Dr. W. W. Schuessler, El Paso, one of the speakers; Dr. John P. Dunn, Pecos, retiring District One secretary-treasurer; and Dr. H. D. Garrett, El Paso, retiring vice president of District One.

six general services which are not authorized. These are the treatment of chronic diseases, nervous and mental disorders, elective medical or surgical procedures, dental care, ambulance service, and prosthetic devises, hearing aids, and spectacles.

"As far as financial responsibility is concerned, the government will pick up the major part of the check for medical and hospital services rendered in the program. When hospitalized in civilian facilities, the dependent will pay the first $25 of the expenses incurred, or $1.75 per day, whichever total is the larger. The Texas Medical Association and the Department of Defense have agreed upon a schedule of fees which will be allowed for professional services. The Board of Trustees of the Texas Medical Association has negotiated a very fair schedule, and it should cover most procedures in a satisfactory manner. Medicare is based upon the premise that the doctor should charge his average, customary fee.

Fiscal Administrator

"At the request of the Texas Medical Association, Blue Shield of Texas is serving as the fiscal administrator for doctors who participate in the program. Blue Shield presently is processing all medical claims and is being reimbursed by the Department of Defense. Mutual of Omaha is serving in a similar capacity for the hospitals. May I add here that in contract negotiations, officers of the Texas Medical Association vigorously supported Texas hospitals in their request for a free choice in designating Blue Cross as their fiscal agent. Despite our joint efforts, however, this request was denied, and the assignment subsequently was given to Mutual of Omaha.

"Turning to the long-range implications of this program, there is no question that Medicare will have a pronounced effect upon the private practice of medicine and the operation of our civilian hospitals. Approximately 2,000,000 dependents of military personnel presently are eligible for benefits. Texas, with its large military installations, is a key state in this new federal enterprise.

Considerable Controversy

"Medicare already has produced considerable controversy. The program is certain to be scrutinized even more carefully in the months ahead, not only by physicians and hospitals in areas near military installations, but in all communities throughout the state. In analyzing the long-range implications of this program, many of our doctors look upon it with mixed emotions.

"There are some practitioners who regard Medicare as a step away from government control. They argue that because the program tends to transfer the care of military dependents from government doctors to private doctors, it means less—not more—Federal medicine. But many others look upon it as another slip in the wrong direction. These physicians believe that it necessarily will lead toward government control of medical care.

Favorable Side

"More specifically, on the favorable side, the program is designed to make possible a higher quality of medical care through the utilization of civilian medical facilities and doctors in private practice. Almost everyone agrees that this objective is commendable, and that it should be achieved. In addition, with better medical care available to dependents, the Department of Defense has anticipated that the program will be a factor in reducing the present high turnover of skilled personnel in the armed forces.

"It is possible that several favorable by-products of this program might materialize. A segment of medical care previously furnished in military installations now can be channeled back to civilian hospitals and to doctors in private practice. This is expected to result in a lessening demand for physicians in the armed forces, with the anticipated expiration of the Special Draft Law on June 30 of this year. And through the utilization of our community hospitals, it also is conceivable that the need for military medical facilities will not be increased in the years ahead.

Principles Of Free Choice

"We also should acknowledge that the Medicare program embodies the principles of free choice. The patient may pick the doctor he wishes. The physician also will maintain his traditional right of selection of patients, and if he wishes, he may elect not to participate in the program.

"But unfavorable aspects of the Medicare are equally apparent. The federal government will spend, by its own calculations, $74 million dollars annually to subsidize medical care for dependents. The government not only will pick up the check for actual medical and hospital services, but also the cost of administering the program. These expenditures will add substantially to the increasing tax burden of this nation.

"Another objectionable feature is the fact that Medicare is a full service program. Physicians are remunerated by the government in accordance with a published schedule of allowances, and there is no provision for additional charges to the patient by the doctor. This principle is not compatible with the time-honored privilege and right of every doctor to decide for himself whether or not a fee offered by a third party shall be accepted as payment in full for his professional services.

Greater Concern

"But of even greater concern, is the fact that the Medicare program will contribute to the trend towards big government. With another Congress now in session, there already has been some discussion of extending the principles of this program to include

(Continued on Page 182)

Doctor-Lawyer Meeting Scheduled for Denver

The American Medical Association has invited doctors and lawyers in the Rocky Mountain and Great Plains states to a medicolegal symposium in Denver March 22 and 23.

"Medicine and the law must work together so frequently that we feel open discussions of mutual problems would be of great assistance to the two professions," said C. Joseph Stetler, Director of the American Medical Association's Law Department, in announcing the meeting.

One of a series of three such symposiums to be held during March in various sections of the United States, the Denver symposium will feature such subjects as trauma and disease, medical expert testimony and the medical witness. In addition, a mock trial demonstration will take up the introduction in court of chemical tests for intoxication.

Registration Scheduled

Registration fee for the meeting — to be held at the Cosmopolitan Hotel — is $5.00. This will cover the cost of a luncheon session and a copy of any proceedings that are published. Plans are being made to accommodate 350 attorneys and physicians.

Applications for attendance, together with the registration fee, should be sent to the Law Department, American Medical Association, 535 North Dearborn, Chicago 10, Illinois.

Other meetings in the current medicolegal series will be held in Atlanta, March 15-16 and in Philadelphia, March 29-30. Last year similar symposiums were held in New York, Chicago and Omaha.

Academy Outlines St. Louis Program

Are children's ears and feet neglected? Is a laboratory report always accurate? What's new in the world of tranquilizers? These and hundreds of other important questions will be answered during the American Academy of General Practice Ninth Annual Scientific Assembly, March 25-28 in St. Louis' Kiel Auditorium.

More than 25 prominent physician - authorities will appear on the four-day scientific program. In addition, the more than 5,000 family doctors expected to attend will have opportunities to visit 73 scientific and 260 technical exhibits. The Academy, founded in 1947 and headquartered in Kansas City, Mo., has more than 21,000 family doctor members and is the nation's second largest medical association.

Post-Graduate Education

The 1957 scientific program will provide an unparalleled post-graduate education opportunity for physicians who, by definition, must guide their patients through the increasingly complex field of medical care.

Border Public Health Association to Meet in April in San Antonio

The 15th annual meeting of the United States-Mexico Border Public Health Association, will be held in San Antonio April 9-12 with headquarters in the Hilton Hotel.

Dr. J. C. Ellington, health officer of San Antonio, is chairman of the San Antonio planning committee for the meeting. Dr. Ellington was former chief of the El Paso field office of the Pan-American Sanitary Bureau and was secretary of the association in 1952.

Dr. Henry A. Holle, commissioner of health in the Texas State Department of Health, has been selected as chairman of the Texas State Committee for the association's meeting.

Officers are as follows: Dr. Guillermo Soberanes of Hermosillo, Mexico, president, Jefe Servicios Coordinados de Salubridad y Asistencia; Dr. Malcolm H. Merrill of Berkeley, California, president-elect, Director California State Department of Public Health; Dr. David M. Cowgill of San Benito, Texas, vice-president, Director Cameron County Health Unit; and Dr. Sidney B. Clark of El Paso, Chief of El Paso Field Office Pan American Sanitary Bureau.

Orthopaedic Treatment of Rheumatic Disorders

A course on the orthopedic aspects of the treatment of rheumatic disorders will be given for the first time by the New York University Post-Graduate Medical School for three successive Thursdays, from March 19 through April 2.

The basic orthopedic principles as they are applied in the treatment of rheumatic diseases will be reviewed. This course will include a well-rounded correlation of the means of orthopedically preventing and correcting deformities caused by rheumatic disorders. Office practice will be stressed. Extensive clinical material from the wards of Bellevue and University hospitals will be demonstrated.

For further information write: The Dean, NYU Post-Graduate Medical School, 550 First Avenue, New York 16, N. Y.

Texas Post-Graduate Dean to Speak at Fort Bayard

Dr. John S. Chapman, Assistant Dean of Post-Graduate Education and Professor of Medicine at the University of Texas Southwestern Medical School at Dallas, will speak March 6 at the Veterans Administration Hospital in Fort Bayard, New Mexico, to a joint meeting of the hospital staff and the Grant County Medical Society. His subject will be "Collagen Diseases".

American Trudeau Society Meets in May in Kansas City

The 52nd annual meeting of the American Trudeau Society, medical section of the National Tuberculosis Association, will be held in Kansas City, May 6 - 9, 1957, in conjunction with the annual meeting of the National Tuberculosis Association.

In addition to scientific sessions at which papers will be presented on current research, plans are being made for seven special lectures and four panel discussions. Topics for the latter will be tuberculin testing, fungous diseases, tuberculosis case finding, and the surgical approach to the bad chronic case of tuberculosis.

The lectures will be on cor pulmonale, chest injuries, hazards of radiation, tuberculosis in animals, histologic studies in smoking, mucovisidosis, and diseases of the diaphragm.

Cardiology Review

Two intensive review courses in cardiology for general physicians and internists are being offered by the New York University Post-Graduate Medical School on a full-time and part-time basis.

The part-time session (5410-A) will consist of seven meetings, from 2 to 5 p. m., on Thursdays, April 11 to May 23. In this course emphasis will be placed on clinical cardiology, with a detailed review of all the major forms of heart disease.

The full-time course (549-A) will start on May 6 and end May 24. It will include an intensive review of the basic knowledge and the recent advances in the diagnosis and treatment of heart disease. Electrocardiography is an integral part of the course and emphasis is to be placed on the modern electrophysiology of the heart.

For further details write: The Dean, Post-Graduate Medical School, 550 First Avenue, New York 16, N. Y.

Dr. W. A. Jones Elected . . .

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federal civil service employees, old age pensioners, those who are disabled under the Social Security Act, and veterans with both service and non-service incurred disabilities.

"Obviously, as the government pays a larger portion of the cost for health and medical care, the prospects for the complete nationalization of medicine will become even greater. We all are aware that the traditional American philosophy of the individual paying his own way, actually has lost substantial ground during the past 25 years. In 1929, for example, only 12 per cent of the cost of civilian medical care was borne by the government. By 1947, that figure had increased to 19 per cent. Now, almost one fourth of the cost of health and medical care is being paid with government funds. The United States Chamber of Commerce recently reported that the present outlay for civilian medical care is $14 billion per year. Of that amount, $3½ billion—or 24 per cent—is being defrayed by various governmental agencies.

Summary

"In summary, then, the Medicare program undoubtedly will produce better medical care for military dependents. But as the policy-making body of the Texas Medical Association has emphasized, it would have been far better to provide more sufficient salaries to servicemen. That would enable servicemen to pay for the medical care of their dependents. It also would keep the Department of Defense out of the field of medicine; and we believe, it would prevent further governmental encroachment upon the rights, privileges, and the responsibilities of the individual."

Coming Meetings

Temple Div., Univ. of Texas, Temple, Texas, March 4, 5, 6.

Orthopaedic Postgraduate Course, New York University Postgraduate Medical School, Mar. 19, Mar. 26, Apr. 2

AMA Medicolegal Symposium, Mar. 22 & 23, Cosmopolitan Hotel, Denver

American Academy of General Practice Scientific Assembly, March 25-28, 1957, in Kiel Auditorium, St. Louis.

Border Public Health Association, Apr. 9-12, Hilton Hotel, San Antonio

Cardiology Review Courses, New York University Postgraduate Medical School, Apr 11 - May 23, and May 6 - 24

Texas Medical Association, 90th Annual Session. April 27 - May 1, 1957, Dallas. Headquarters, Baker and Adolphus Hotels. Headquarters, Woman's Auxiliary, Statler Hilton Hotel.

American Trudeau Society, May 6-9, Kansas City

New Mexico Medical Society, May 15, 16, 17, 1957, in La Fonda Hotel, Santa Fe.

District 8, American College of Obstetrics and Gynecology, Reno, Nevada, May 27 & 28.

American Fracture Association, September 30, October 1 and 2, 1957, in El Paso. Dr. W. Compere Basom is in charge of arrangements.

Southwestern Medical Association, October 9, 10, 11, 1957, in El Paso.

Texas Surgical Society, El Paso, April 7 & 8, 1958

ORIGINAL ARTICLES

Hay Fever in the Southwest Sun Country

By Albert H. Unger, M. D., El Paso

Hay fever in the Sun Country of the Southwest, comprising West Texas, New Mexico and Arizona, is a far different problem from that seen in other sections of the country. Most of this area has practically no Ragweed, so that many sufferers from Ragweed hay fever are greatly relieved when they first come to this area. Unfortunately, some develop symptoms within a few years due to the pollens of ragweed's cousins which are indigenous to this area. These include Russian Thistle, Carelessweed, Sage, Shad Scale and Burning Bush.

Natives of this area who develop hay fever are primarily sensitive to Tumbleweed and members of the grass family; although there are, of course, as many sensitivities as there are air-borne pollens. We have the usual three seasons here, plus two extra short ones. These seasons are shown graphically in Table 1 and compared to those for the northern U. S. The dates quoted are only approximate and vary somewhat from year to year.

Important Point

One important point, too often neglected in consideration of allergenic plants, is the relative potency of the individual pollens in sensitive individuals. It is impossible to accurately assay this factor, but it is safe to state that most tree pollen has a low index of potency. Mold spores are generally somewhat more potent; grass and Ragweed pollens are about equal and much higher than the others mentioned.

Russian Thistle pollen is vastly more potent than any of the others. There are certainly many individual alterations to this grouping; one patient may be tremendously sensitive to a certain tree pollen or mold spore. There are also botanical exceptions: Pine pollen is now considered completely innocent of all allergenicity, while Mountain Cedar ranks high in potency, probably near to or even above Ragweed.

Air-Borne Pollens

Only air-borne pollens (or spores) cause allergic symptoms in the average patient. Any plant with a pretty odor or color has it in order to attract insects, which accomplish the pollenization. The individual pollen grains of such plants are large, heavy and few in number. Only people in very close contact with such plants, mainly florists, avid amateur gardeners or horticulturists, prove sensitive to them. Occasionally, patients will demonstrate symptoms due to flowering shrubs right outside their bedroom windows.

Alfalfa, Clover and some other plants often blamed for symptoms have no allergenic pollen at all in the natural live state, since they have a trap-door arrangement by which the pollen is released only when an insect steps on the right spot. Of course, after harvesting and drying, they may lose this protective mechanism. The so-called "Rose fever" is not due to Roses at all, but is tree or grass hay fever which happens to occur when Roses are blooming.

Environment

In determining the causes of hay fever for an individual, it must always be borne in mind that he may be exposed in his own environment to an unusual allergen. Therefore, every patient must be questioned closely concerning occupational exposures and the flora around his own house. There may not be two Gingko Trees within a thousand miles of here, but he can be sensitive to them if they are in his yard. The history is even more important to the experienced allergist in determining the *clinical* causes of hay fever than are the skin tests. Skin tests themselves are sometimes worse than useless unless they are read and interpreted by a capable physician in the light of the history.

POLLEN GROUPS	NORTH CENTRAL	SOUTHWEST
Mountain cedar	- - - - - - - - -	Oct - Nov or Feb - March
Other Trees	1 Apr - 15 June	15 March - 1 June
Grass	15 May - 15 July	1 May - 1 November
Fall Pollens		
Ragweed	10 Aug - 1 Oct	25 Aug - 7 Sept
Russian thistle & carelessweed	- - - - - - - - -	15 Ju'y - 1 November
Mold spores	1 Apr - 1 Nov	- - - - - - - - -

Table 1. Seasonal inhalants of the North Central U. S. (Chicago area as example) and Southwest (West Texas-Arizona-New Mexico).

Major Pollens:

1.) Tree pollen is the first of the major offenders to hit the air annually. Mountain Cedar, which affects relatively few people in scattered localized areas, has a separate season, mainly in February, but extending from late January into March. Around Big Spring, Texas, October and November are the main Mountain Cedar months (2).

Varieties of Cottonwood (Poplar) and Ash are found throughout the area, with stands of Oak, Mulberry, and Chinese Elm important local factors. Treatment should ordinarily be aimed at the local variety, since treatment with American Elm extract may not protect against Chinese Elm, for example. If a particular tree is present in one community, the patients of that area should be tested and, if neces-

sary, treated for it, even though it is insignificant elsewhere.

2.) Shrub pollen is a matter of local varieties, although Mesquite and Salt Cedar are fairly widespread. Mesquite properly belongs with the tree family, but is of debatable importance as a cause of hay fever; positive skin tests to it are rare in El Paso. Salt Cedar (Tamarix), Mock Orange (Syringa) and Privet (Ligustrum) may be important in some areas, particularly when they sit outside a bedroom window.

Grass Pollens

3.) Grass pollen season begins with a bang around the first of May and persists severely through mid-June. Mild amounts of pollen persist in the air until the first frost, with occasional severe flareups after rainfalls or dusty windstorms. Bermuda Grass is by far the most important, although Johnson Grass and Perennial Rye are frequently major factors. June (Blue) Grass is sometimes cultivated for lawns, especially in northern New Mexico; Timothy, which is not supposed to grow here, I have seen on well-watered lawns.

4.) Ragweed is infrequent and spotty throughout this area and is ordinarily of only minor importance; in a severe season, some transplanted northerners may have two weeks or so of mild symptoms. False Ragweed (Franseria) produces a lot of pollen (primarily in Arizona), but this is not highly potent and therefore not ordinarily an important cause of hay fever. Sage, a close relative, is also a minor factor.

Tumbleweed

5.) Russian Thistle is the most common cause of fall hay fever in this area, As mentioned above, it is highly potent to individuals sensitive to it; high Tumbleweed counts are not necessary for patients to have severe symptoms. This same factor makes it difficult to raise therapeutic desensitization dosages to high levels.

6.) Kochia (Burning Bush, Firebush, Mexican Fireweed) is becoming increasingly important as it invades this area. It looks like a small sparse Tumbleweed which turns red in October. It is believed almost as potent as Russian Thistle, although fewer people are sensitive to it as yet.

7.) Palmer's Amaranth (Carelessweed) is second in importance among fall pollens only to Tumbleweed. It is widespread throughout the greater Southwest and easily identified by its tall straight red-streaked stem and long (up to a foot) slim pollen stalks. Its sister, the rough (spiny, red-root) Pigweed is endemic to much of the country, including the northwestern United States.

Atriplex

8.) Atriplex (Shad Scale, Saltbush, Wing Scale) is important as a local factor. In El Paso, it ranks just behind the Carelessweed among natives. It is rarely a factor in patients transplanted here from other sections of the country.

9.) English Plantain is supposedly never a major factor in hay fever; the figures in Table 2 are not explicable on the basis of its known growth here. It is seen in irrigated areas, such as golf courses, but not all our patients are golfers.

10.) Molds are generally present but unimportant in this area. Patients exposed to indoor dust, old files, upholstering materials, etc., are liable to the same symptoms here as elsewhere. It is also possible that there are many molds in the pads of evaporative air-coolers, particularly when they are first turned on. These pads should be replaced at least at the beginning of each year of use.

Other Factors:

Adding to the woes of the hay fever victim can be many other factors; some of these are perennial in their allergenicity while others may cause or add to symptoms only during the pollen season. At such a time, when the patient is already having symptoms, emotional or physical factors can make the situation worse.

Thus, minor emotional tensions, ordinarily taken in stride, may cause hay fever flareups. Alcoholic beverages, which can cause a red nose when taken in excessive quantities, can lead to increased nasal congestion in a person with hay fever. Ordinary irritants, such as tobacco smoke, soap or detergent particles, industrial fumes, paint or perfume odors or road dust can magnify the woes of hay fever in season.

Food Symptoms

Foods can also cause or increase hay fever symptoms during the season. It has also been shown that foods can cause symptoms only at certain times of year without evidence of pollen sensitivities. Some patients find much greater relief from their sneezing if they avoid certain foods at times when they are having symptoms due to pollens. Skin tests may be helpful in this respect, although the clinical history is much more important.

In patients who have some perennial symptoms, accentuated into seasonal hay fever by pollen sensitivities, treatment with the perennial allergens will increase the amount of relief they can be afforded. Thus, house dust or perennial mold therapy should be administered, even though the perennial symptoms per se are not severe enough to warrant therapy. This can also be true of the less important year-'round allergens, including feathers, animal danders, kapok, pyrethrum and orris root.

Local Features

This area has several local features which affect hay fever. The general dryness can effect some people, although more are probably benefited than are harmed by it. The evaporative air-coolers seem to adversely affect certain allergic individuals. Three factors may be active here:

(1). Humidity changes seem to affect uncontrolled allergic individuals; such changes cause less trouble as desensitization takes effect, although we cannot explain why. There is no specific treatment for this.

(2). Circulation of allergens is accomplished by the coolers and fan, so that the dust and pollens are kept in the air, rather than settling to the floor. Some allergens are also sucked into the building by the fan.

(3). Molds may settle into the pads, as well as dust into the ducts during the winter.

Dust Storms

Dust storms cause great accentuation of symptoms in many individuals, although the main dust season precedes the pollen seasons (mainly March and early April). There are also three ways in which this factor affects patients:

(1). Irritation by blowing sand particles.

(2). Blowing of large amounts of pollen particles, sometimes picked off the ground by the wind.

(3). Bacterial particles blown in with the dust.

Treatment with specific bacterial vaccines or proprietary preparations such as Catarrhalis combined vaccine will frequently help control these symptoms.

Skin Tests:

As mentioned above, skin tests must be read and interpreted by a physician in the light of the history of that particular patient. Allergists do not agree on the type of test to be performed or even on how many to do. We feel that each patient should be skin tested for all inhalant factors found in his particular area, including pollens, molds, dust, animal danders and miscellaneous allergens.

These should be done routinely, even if the history is classical of sensitivity to one certain pollen. There is no time of year when there is only one allergen in the air; treatment for secondary factors is vital to obtain the greatest relief of symptoms.

In other words, if the history and tests reveal primary sensitivity to Tumbleweed, the patient should be treated mainly with Tumbleweed extract. If there are positive reactions of lesser degree to Carelessweed, he will be afforded more relief by treating with both pollens than with one.

Scratch Tests

Scratch tests are safer than intradermals and should be performed routinely. It is appreciated that scratch tests are often completely or partially negative and some intradermals are almost always required. Table 2 shows that many patients react to pollen scratch tests; no table can show the many very large reactions elicited during this series. Each of these tremendous scratch reactions could have been a severe constitutional reaction, had we done only intradermals.

There are certain inhalant and food allergens so potent that intradermal tests for them should never be performed, even with negative scratch reactions; cottonseed, castor bean and buckwheat have caused severe constitutional reactions and even deaths after intradermal tests.

None of us is perfect; we can occasionally fail to put the allergen directly on the scratch, giving a false negative reaction. For materials other than these few allergens, a negative scratch test permits safe intradermal testing with full-strength materials (usually 1:1000).

Food Skin Tests

Food skin tests can be performed whenever indicated by the history. It is entirely possible for food factors to be important in hay fever, causing or contributing to symptoms only during a pollen season. However, food skin tests are notoriously inaccurate, giving both false positives and false negatives.

All positive reactors must be checked clinically, by avoidance and re-feeding, before attaching any significance to them. We perform scratch tests for major foods, but complete scratches and any intradermals are done only when indicated by the history.

One important and oft overlooked precaution before doing skin tests: the patient must not be taking any medicines which might lessen his skin sensitivity. These include anti-histaminics, epinephrine, almost all anti-asthmatics and many "cold" tablets, as well as some nose drops.

Antibiotics, aspirin, potassium iodide, vitamins and the cortisone-ACTH drugs are safe. In patients taking many medications, it is better to have them avoid everything for four days before the tests, except as prescribed by the physician.

Inhalant Allergen	Scratch	Intra-dermal	Total Number	Per cent of Total	Per cent** of Reactors
Ragweed*	282	386	668	38	48
Franseria	278	---	---		
Marsh elder	232	---	---		
Prairie sage	276	---	---		
Russian thistle	361	631	992	57	72
Amaranth	218	621	839	48	61
Atriplex	72	556	628	36	46
English plantain	227	478	705	40	51
Grass	514	624	1138	65	83
Tree	387	429	816	46	59
Mold	245	409	654	37	47
NONE:			377	22	--

Table 2. Skin test reactions among 1751 unselected allergic patients tested 1954-56. All types of allergy are represented.
*In ragweed family, one intradermal test is performed, using a mixture of all members; scratch tests done separately, except that "ragweed" is a mixture of short and giant.
**Percentages are figured here of positive reactions among reacting patients; this excludes the "None" group.

Specific Treatment:

Avoidance, as far as possible, is the main tenet of allergic management. Only occasional hay fever sufferers can avoid any of the important causes. Children with hay fever should, however, be steered away from professions in which there is great allergic exposure, such as farming, baking, upholstering, etc.

Sometimes, adults have the opportunity to change professions from these to a cleaner occupation, but this can rarely be advised. Patients can easily avoid secondary offenders, such as Pyrethrum, Orris Root and animal danders. House dust should also be avoided as much as feasible.

Change of Climate

Change of climate is rarely an answer to anything, at least for very long. You cannot ordinarily run away from all plants which cause hay fever. Temporary relief is sometimes achieved, but many patients develop new sensitivities within a few years after relocation.

Damp or dry, low or high, city or country: it makes little difference over the long run. If, however, the opportunity presents itself for family relocation, there is available an excellent book (3) which will help you choose the best area for them — but warn them not to expect miracles.

Desensitization (more properly called hyposensitization) is an attempt to raise the patient's tolerance to those allergens he cannot avoid. The serum used is determined by the history and skin tests, with emphasis on the latter. Sometimes, special tests are indicated (conjunctival or inhalation).

Negative tests do not necessarily mean that the patient is not allergic, but may indicate only a non-reactive skin, as commonly found in older people. If the history connotes allergy, the extracts for treatment should be based upon the history; results are frequently excellent in this non-reacting group.

Clarifying Example

The ordinary patient with a hay fever history and positive skin reactions should be desensitized with a combination of all allergens important in his case, but not the reacting allergens which have no bearing on his symptoms. An example may clarify this: A patient is fine except for hay fever annually in September and October. Skin tests a large scratch reaction to Russian Thistle and large intradermal reactions to Carelessweed and tree pollen. He should be treated with extracts of Russian Thistle (obviously the main offender) and Carelessweed (a secondary allergen), but not tree pollen. He should be warned of potential tree hay fever, with treatment instigated for it only when, as and if tree-induced symptoms develop.

Initial Dosage

Initial dosage for desensitization procedures must be chosen with caution. Here are a few general rules for this (figures are weight to volume dilutions); start with:

1.) 1:100,000 dilution of scratch test shows moderate to large reaction.

2.) 1:10,000 dilution if intradermal reaction is moderate to large.

3.) 1:1 million dilution if scratch reaction is immediate and very large.

4.) 1:1 billion dilution if you must treat with cottonseed or castor bean.

5.) Next weaker dilution to any of above if treatment is started during height of the pollen season.

Initial dosage is 0.10 cc of the selected dilution, given subcutaneously. If there are no reactions (see below), subsequent dosages are increased roughly 50 per cent each time. Thus, a standard dosage scheme for a given dilution would be 0.10 cc, followed by 0.15, 0.22, 0.30, 0.45 and 0.70 cc; the next injection would be 0.10 cc of the next stronger dilution. At 1:100 dilution (or stronger), doses are raised 0.02 cc each time.

The interval between injections depends on the time remaining before the onset of the next pollen season. An attempt should be made to reach a dosage of 0.10 cc of the 1:100 dilution at the start of the season.

Reactions

Reactions to injections do occur, despite all precautions. Patients should always be asked about reactions after the last visit before giving today's injections. They should then be kept in the office for fifteen minutes after treatment, after which the arms should be inspected for local reactions.

Notes should be made on the chart concerning any untoward reactions. Proper attention to local reactions can preclude systemic ill-effects. A red area about the size of a quarter indicates that the same dosage should be repeated next time. Reactions larger than that, or with a moderate to large white center, mean that the next dosage should be reduced about 25 per cent.

Categories

Systemic reactions fall into the following categories:

1.) Immediate severe allergic or anaphylactic reactions; these almost always occur within the first fifteen minutes. Epinephrine 1:1000 should always be immediately available; 0.50 cc epinephrine, combined with an injectable antihistaminic, such as 0.50 cc Benadryl (R) or 0.10 cc Chlor-Trimeton (R) (100 mg/cc) should be given at the first sign of such a reaction. This can be repeated, although it is rarely necessary.

2.) Immediate mild to moderate allergic reactions are characterized by sneezing and/or hives. This is usually controlled by an oral antihistaminic plus ephedrine, such as Pyribenzamine with ephedrine (R). Observe the patient closely for an hour or so to make sure more severe symptoms do not develop.

3.) Delayed allergic symptoms, such as accentuation of hay fever or asthma or development of hives; this ordinarily occurs within 24 hours,

but may be delayed as long as three days. Oral antihistaminics usually control such symptoms; ephedrine should be used for asthma.

4.) Delayed non-specific symptoms can also occur within three days; they include headache, malaise, inability to think clearly, including poor schoolwork and giddiness. These cannot be called reactions to injections until and unless they occur more than once — but watch out for them.

Desensitization Injections

Recently, desensitization injections have been combined with antihistaminics to try to prevent reactions. Sometimes, the only result is that reactions are delayed until the patient has left the office. Occasionally, in experienced hands, the combination is helpful, but only in a few selected patients; it should not be used routinely (or the older combination of injections with epinephrine). The cardinal rule of all desensitization procedures is that each allergic patient is a world unto himself and must receive individual attention.

Non-Specific Treatment:

Antihistamines are now very widely used for treatment of nasal allergy; the choice of preparation rests with the individual physician. When a patient is given any new antihistaminic, he should be warned about its possible soporific effects. We never know which patient will become drowsy from which medicine. Benadryl (R) in particular makes an excellent sleeping capsule; the 50 mg capsule should never be given for daytime use.

Ephedrine and its cousins, such as phenylephrine, desoxyephedrine and Propadrine (R) have definite uses in hay fever, alone or in combination with antihistaminics. Many capsules and tablets are now available. Highly potent and palatable liquid combinations include Novahistine (R), Chlor-Trimeton Compound (R) and Co-Pyronil Suspension (R).

Nose Drops Seldom Helpful

Nose drops are seldom helpful in ordinary hay fever; patients should be discouraged from their use, except under extraordinary conditions. Sinusitis secondary to hay fever should be treated with systemic and local antibiotics; the intranasal preparation should include a nasal decongestant, topical antibiotic (not one used systematically) and, at your discretion, a cortisone preparation.

Eye drops are sometimes necessary for symptomatic relief. Epinephrine preparations are the standby, but others provide excellent relief, including Estivin (R). Cortisone preparations can also be used.

Cortisone preparations and ACTH should not ordinarily be used for treatment of hay fever. They should be reserved for those patients in whom immediate relief is essential because of the extreme severity of symptoms, presence of complications or the type of work in which the patient is engaged.

For example, a man who works with a microscope cannot do so with runny eyes; a singer cannot sneeze and sing at the same time — they may need cortisone to permit normal work. Ordinarily, however, try other medicines first before the hormone drugs.

Results of Therapy:

There are three objectives of treatment:

1.) Prevention of natural progression of the disease, in particular the development of asthma. This can be achieved in almost all patients.

2.) Comfort, defined as the reduction of symptoms to the point at which the patient can work and carry on normal activities with minimal allergic symptoms. This can be achieved in better than 75 per cent of patients.

3.) Complete symptomatic relief; this can only be achieved in about one third of patients and should not be expected in any one individual.

Treatment should ordinarily be continued through at least two full pollen seasons, sometimes longer. The results make this worth while.

Summary:

1.) Hay fever is a problem in this area, although there is little Ragweed. Main allergenic pollens include Russian Thistle, Bermuda Grass and Carelessweed, with Johnson Grass, Kochia, Atriplex and tree pollens secondary offenders.

2.) Skin tests should be performed by the scratch and intradermal methods, interpreted by a physician in the light of the history. Food tests are inaccurate.

3.) Desensitization therapy is effective and, with precautions, safe. Miracles must not be expected and treatment must be carried on for a long period of time.

4.) Antihistamines, ephedrine and ephedrine-like drugs give symptomatic relief. Hormone preparations should be reserved for exceptional circumstances.

5.) Climate change is ordinarily no answer to hay fever.

6.) Relief of symptoms to the point at which the patient can carry on normal activities can be expected, although not promised.

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The PR Indoctrination Program — A Necessity*

By Andrew M. Babey, M. D., Las Cruces, N. M.

In 1955, the journal "Medical Economics" made a survey of County Societies to sample the status of membership relations and the nature of any discord. Its study revealed too much misunderstanding and too little effort being made to correct existing conditions. From young members of County Societies they got such statements as:

1. I don't know where to start.
2. I don't know how to get in touch with the professional community.
3. I don't know how to fit in with local medical customs and activities.

From older members they got such remarks about younger men as:

1. Overcharging.
2. Snatching patients.
3. Publicly criticizing colleagues.

It was felt that indoctrination of new members and older members alike could erase many if not all of these problems; that indoctrination, already practiced on a limited scale, should be expanded to cover all County Societies. The need was of course felt by the A. M. A. and State Societies even before the survey; —but this public expression of a wide and important rift, gave impetus to the Indoctrination Program.

Object Of Indoctrination

The objective of the P-R Indoctrination Program is instruction in the rudiments and principles of medical organization and ethics. This program tries to give each physician a sense of belonging to a live and useful organization; it tries to emphasize each man's responsibilities and duties not only to his patients but to his County Society. Dr. Murray, President of the A. M. A., stated it well in the Rocky Mountain Medical Journal for January, 1957:

"The road to apathy and disunity can only lead to disorder and perhaps disintegration; and we must sound a warning to all our colleagues who don't care or who are pulling in the opposite direction. The road of alertness, action and unity is the proper road for all of us to be travelling together."

A few questions automatically spring to mind. The P-R Indoctrination Program is relatively new. It is really necessary and if so why? It would seem that our predecessors did not need any such plan. Is this true? Are we as a profession more mercenary, callous, lazy and obstinate? Why is it that in spite of an improved scientific position with much more to offer the public, our personal relations with this same public appear to have deteriorated? Is this new weakness in our profession or new strength in a demanding, socially-awakened public?

One Answer

I don't presume to have the answers to any of these questions, except one: As a member of the no-longer-a-spring-chicken class I can testify that indoctrination was needed at least in the 1940s. As to the other questions, perhaps at least for practical purposes, we should admit there is much to be said on both sides.

As for us, about a year ago I talked with a physician who for 15 years has been in charge of the Neuropsychiatric Section in a well-known Eastern Clinic. Around 35 Fellows pass through his department in the course of a year. He surprised me by saying that recently no more than four or five of these young men showed a solid interest in their work, a much smaller percentage than ten years ago. His explanation for this lassitude was that these men were victims of the current socio-economic revolution.

Also, about a year ago I talked with an Emeritus Professor of Obstetrics, from Dr. Adler's Alma Mater, about the reasons for the increasingly hostile feeling of the public for our profession. As a member of a grievance committee in the East he noticed that complaints centered mostly about the inability of patients to locate doctors on week-ends.

Constructive Examples

I mention these examples in a constructive rather than deprecatory way. There is no denying that on the whole we pull our weight and are conscientious. But even if we grant that only a small minority is causing trouble it behooves us to put our house in order, so that all shall not suffer.

And as I see it, this is the one big objective of the P-R Indoctrination Program. To illustrate its present broad scope I should like to review some of the most important steps being taken in various parts of the country to promote the P-R Indoctrination Program. You will understand that no one state or county now has all the platforms I shall list; but this birds-eye view of the wide coverage of the P-R Indoctrination Program will give you some conception of the thought that has gone into it, and some idea of what *we* here can do. All this material is published by the A. M. A.

Students Indoctrinated

You may be surprised, as I was, that medical students are being indoctrinated in some states. The State Society gives senior students a luncheon, shows some

*This paper was delivered by Dr. Babey at the regional meeting of the New Mexico Medical Society's public relations committee in Las Cruces Jan. 19, 1957.

pertinent movies, and gives a few practical lectures covering such things as

(1) Your Practice and Public Opinion

(2) You and the Medical Society

(3) The Legal Aspects of Your Practice and

(4) The Business Side of Practice.

You may also be surprised, as I was, that older Society members ask for and get indoctrination. I might add that in some places they get it even without asking for it! The P-R Program tries to remind older members to be less clannish, less intolerant of young members who express their opinions, to be more understanding and more cooperative. Even though the P-R Indoctrination Program is aimed primarily at new members there is good sense in its including older ones, as you can see from the following.

Surgeon Tells Story

In the December, 1956 issue of Rocky Mountain Medical Journal Dr. Leland McKittrick, a distinguished surgeon and teacher, tells this story: "Early this summer a young man asked if he might come to my office and talk with me about a personal matter. Briefly, he told me he had been a general practitioner in one of our eastern cities.

"He wanted to do surgery and after a thoughtful consideration of the time and expense involved, decided to give up his general practice and use his savings to get a proper surgical training. He was fortunate enough to get into a training program, which he was about to finish, and which would make him eligible to take the examinations of the American Board of Surgery.

"He had been born and brought up in the town in which he had practiced and planned to return there. This spring he went back to begin arrangements for his office and hospital privileges.

Privileges Withheld

"He was told that he could not be given hospital privileges in surgery unless he was sponsored by one of the three surgeons of the staff, all men he had known and worked with when he was in general practice. For one reason or another each found it impossible to do this.

"He had obtained his surgical training at great sacrifice to him and his family. That city had always been his home and he wanted to go back. Did I have any suggestions? As I listened to this young man, as I have listened to others who have had the same brush-off, I could not but wonder whether the staff of the hospital was really fulfilling its obligations to the hospital and community or if it might not have been more interested in protecting its own selfish interests."

Denied Basic Right

It might be a little hard to indoctrinate such a physician, and to tell him to be a "good fellow", while at the same time he was being denied the right to earn an honest living.

Discussing the other side of the coin, Dr. McKittrick goes on later to say: "We are all trying to reestablish the family physician in his proper place in our medical care program. Of these efforts I am a staunch supporter. In many of our hospitals today, he has been denied all privileges except making social calls on his patients. In some hospitals he may no longer apply a low forceps or even do a normal delivery. He may not suture a minor laceration or reduce a simple fracture."

These are serious problems which need early solution, and no one can solve them but the profession at local and state levels. Nothing will be accomplished by one group hurling bricks at the other.

New Members

Next we come to the Indoctrination Program as it relates to new members. Some states now require a waiting period of six months to two years before accepting a man as county society member. During that waiting period he is obliged to attend six lectures covering "basic principles and responsibilities." Some counties make a very nice personal contact with the new member using a (1) welcoming letter from the president, (2) luncheon or cocktail party, and (3) designation of a sponsor to guide and advise the new-comer.

In addition to these, the P-R Indoctrination Programs stress heavily an "instruction phase" using lectures and printed material. The following is a fairly comprehensive table of this subject matter:

(a) "The Small Arts of Practice."—Appearance, personal habits, professional demeanor.
(b) Licensure
(c) Narcotics Laws
(d) Ethical Principles — Doctor and Doctor, Doctor and Patient
(e) Hospital and Sickness Insurance — Participation in voluntary pre-payment programs.
(f) Workmen's Compensation and V. A.
(g) Laws Governing Medical and Surgical Practice.
(h) Aims and Activity of Local Society.
(i) Membership Data — Advantages of County and State Membership.
(j) State Forms for Doctor's Employees.
(k) Check List — Things to Do Before Starting a Practice.
(l) Medical Legislation.
(m) Structure and Function of Organized Medicine.

(Continued on Page 198)

Prevention and Treatment of Blood Transfusion Reactions* †

By Marvin J. Friedenberg, M. D., New England Center Hospital, Boston

The transfusion of blood is one of the most frequently employed and amazingly effective therapeutic agents available in the practice of medicine today. It alone has been responsible for the saving of untold numbers of lives through its direct administration in acute and chronic medical and surgical conditions. In addition, it has made possible the performance of innumerable surgical procedures which otherwise would have been inconceivable.

Yet blood transfusion is a mixed blessing, and the utilization of this therapeutic agent carries with it a grave responsibility on the part of the physician. This is because of the wide variety of complications, some of them potentially fatal, which may result from the transfusion of blood and which must be seriously considered at all times.

No Accurate Method

There is no accurate way to determine the exact frequency of blood transfusion reactions. Comparison and compilation of reported statistics are inaccurate because of lack of standardization of prophylactic, diagnostic, and administrative procedures, as well as the constant introduction of newer, more efficacious techniques in the field of blood transfusion.

For example, the observers performing one study[1] uncovered by daily evaluation of transfusion recipients a total of 55 transfusion reactions. However, only 10 of these had been reported to them by the other members of the hospital staff, all of whom had been given a standing order to report all reactions. Under these circumstances the records of this hospital would have shown only one-fifth the number of reactions that actually occurred had they alone been consulted.

Statistics Desirable

In spite of the obvious inadequacies which may be inherent in the compilation of such data, it seems desirable to present some of the statistics reported in the literature in order to emphasize the great frequency of, and dangers involved in, the transfusion of blood.

It has been stated[2,3] that blood transfusion has a higher mortality rate than an uncomplicated appendectomy or the administration of ether anesthesia. It has been estimated that one death is produced by the administration of every 1-3,000 transfusions,[2,3] although another report[4] claims only one death to have resulted from the transfusion of 13,000 bottles of blood.

On the other hand, the incidence of transfusion reactions of all types was stated[5] in 1922 to be 25.4 per cent. More recent estimates (1940, 1951, 1949) have been considerably lower, two claims[6,7] of between three and four per cent having been made, as well as one report[8] of 4.8 per cent in a series of over 2400 transfusions.

Regardless of the precise frequency of reactions, when one considers that approximately 3,000,000 transfusions are given each year in the United States,[9] the magnitude of the situation may easily be appreciated.

Six Categories

In the following discussion the broad field of transfusion reactions has arbitrarily been subdivided into the following six convenient categories and each will be discussed in turn:

(1) Reactions due to abnormal PHYSICAL PROPERTIES of the transfused blood.
(2) Reactions due to an upset in the BODY HOMEOSTASIS caused by blood of either normal or abnormal composition.
(3) PYROGENIC or "febrile" reactions.
(4) ALLERGIC or anaphylactoid reactions.
(5) Reactions due to the transfusion of INFECTIOUS DISEASE AGENTS, including bacteria, viruses, spirochetes, and protozoa.
(6) Reactions caused by INCOMPATIBILITY of recipient and donor blood, including incompatibilities with respect to erythrocytes and possibly platelets.

There may be close similarities in the clinical manifestations of the various reactions, often making the differentiation of one type of reaction from another an extremely difficult task. For example, chills, fever, or shock may be present in any one of several different reactions.

Pyrogens, or metabolic products of bacteria, are the commonest cause of chills and fever following the transfusion of blood, but these symptoms are of much shorter duration and of less intensity when produced in this manner than when they are associated with the initial stages of an incompatible blood transfusion reaction.

The chills and fever which may be produced by the infusion of bacterially contaminated blood are usually of less significance than the associated shock, and those resulting from an allergic reaction are usually delayed in onset.

Particular Difficulty

It may be particularly difficult to distinguish a mild reaction of one type from a more severe reaction of another category. Familiarity with the etiological factors operative in the production of each type of

*The article presented here is the first of three sections, the others to be presented in two subsequent issues.
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reaction and the clinical manifestations that characterize each are essential to the proper diagnosis and treatment of transfusion reactions.

One cannot emphasize too forcefully the dangers inherent in blood transfusion. It is recommended[4] that the transfusion of blood be avoided if at all possible, to the extent that plasma expander be administered, if it is anticipated that only one pint of blood will be needed.

At all times a careful history should be elicited prior to each transfusion, including questions regarding the occurrence of previous reactions and erythroblastosis fetalis in an offspring.[4]

Physical Properties

Transfusion reactions may occur as a result of abnormal physical properties of the infusion set, including imperfections which permit the entrance of air into the system, or factors which alter the physical properties of the donor blood itself.

Among the latter are those which may produce extravascular hemolysis,[8] including mixture of the donor blood with dextrose solution or the addition of hypo- or hypertonic solutions to the blood, as well as abnormal temperatures (freezing, heating) or storage conditions (prolonged, improper) of the administered blood.

Mechanics of Collection and Administration

The actual mechanics of blood collection and administration play an important role in the prevention of transfusion reactions. If blood enters the collection flask under high velocity, as may be the case when the vacuum type of collection set is used, hemolysis may result with precipitation of fibrin clots.[10]

This may be prevented by adjusting the flow rate of the blood to a degree not exceeding 50-75 ml/min and by inverting the flask during the collection.[10] It is claimed[10] that increased cell destruction may also be produced by too vigorous mixing of diluent and blood prior to administration. Also recommended[11] is the employment of a plastic bag ,receiving set to minimize the undesirable effects produced by glass and air interfaces.

Proper Design

The proper design and insertion of the venipuncture needle have also received some attention.[13] Venesection needles may be given non-wetting or platelet-repellent properties by utilizing stainless steel needles on whose surfaces are applied thermostable monomolecular coatings of silicone.

In addition the occurrence of clotting during the venesection may be reduced by using needles whose shape is modified to decrease turbulence and eliminate air entrapments. Finally, it is recommended that an effort be made to perform a nontraumatic venipuncture in order to eliminate as much as possible the potentiating effect of tissue activator on the clotting mechanism.

One report[14] states that terminating the administration of intravenous infusions, including blood, as quickly as possible and not permitting them to run more than 8 hours reduced the incidence of thrombophlebitis from 52 per cent to 4.5 per cent.

Gas Embolism

This is always a potential danger in blood transfusion, particularly when oxygen or another gas is used to administer the transfusion under pressure.[10] It goes without saying that extreme care should be taken when blood is given by this method.[15]

However, the need for special techniques to accomplish the rapid administration of blood may be obviated by simply utilizing tubing long enough to permit the full effect of gravity.[10] In addition a large needle should be used; some observers[15] claim cell destruction may be prevented only by using a size number 16 or larger needle.

Alternative methods include the manual pumping of blood through a giving system incorporating a three-way stopcock, the utilization of a De Florez pump (there is reputedly a low risk involved with a rotary pump[17]), or the application of manual pressure to a collapsible plastic bag containing acid-citrate-dextrose (ACD).[10]

It might be mentioned here that a serious but nonfatal case of air embolism occurred as a result of air entering the transfusion system through a piece of unguarded open plastic tubing during the course of an exchange transfusion for erythroblastosis fetalis.[18]

Hypo- or Hypertonic Solutions

The mixing of citrated whole blood and an aqueous solution of glucose may be responsible for the phenomenon of agglutination or rouleaux formation of erythrocytes within the tubing of the transfusion set or a transfusion reaction (chill, fever, nausea, collapse) in the recipient of the blood.[19,20]

This phenomenon occurs with all blood types and in all concentrations of glucose, but only in the absence of electrolytes from the medium.[19] The addition *in vitro* of a few crystals of NaCl, a small amount of isotonic saline, or even some blood plasma to the red cells agglutinated in this manner results in the immediate dispersion of the cells[19] and attests to the reversibility of this phenomenon.[19,20]

Nevertheless, the danger of extravascular hemolysis as a consequence of increased red cell fragility has been pointed out.[8] It is strongly urged[10,19,20] that whole blood or packed or resuspended red cells should not be allowed to mix with an aqueous solution of glucose in any manner during their collection, storage, or administration.

This, of course, also precludes the use of aqueous dextrose (but theoretically not dextrose and saline)

as an intravenous fluid preceding the administration of blood.

Temperature and Time of Storage

Although no harm apparently results from the infusion of blood having a refrigerator temperature, it is recommended that blood be allowed to stand in a warm room for one hour prior to administration to prevent venous spasm and rigours attributable to cold agglutinins.[21]

The infusion of frozen blood has its obvious dangers,[21] and on the other hand, a fatality has been reported[22] to have occurred following the administration of blood which had been excessively warmed. The ideal situation would be to warm blood removed from the storage refrigerator under controlled conditions by means of a thermostat or thermometer.

Gradual *in vivo* destruction of red cells made more fragile by prolonged or improper storage may occur following transfusion, but the resulting reaction is characterized by neither shock nor renal failure.[10]

Nevertheless, considerable harm may come to the recipient as a result of the infusion of blood altered in this manner.[10] Before a diagnosis of this type of reaction is made, the occurrence of an incompatible transfusion reaction must be excluded by appropriate type and cross-match studies.[10]

Body Homeostasis

The upsets in body homeostasis that may occur as a result of blood transfusion may be conveniently divided into three categories — namely, those due to electrolyte imbalance, those due to overloading of the circulation with an excessive volume of fluid, and finally, a miscellaneous group of reactions.

Electrolyte Imbalance

The electrolyte content of banked blood is influenced by the donor's blood electrolyte levels, the anticoagulant solution employed in processing the blood, and finally, the temperature, time, and other conditions of storage.[23] Under ordinary circumstances, whatever electrolyte changes that are produced in the recipient are within his limits of tolerance for several reasons.[23]

In the first place, when a recipient of average weight receives one unit (500 ml) of blood, the apparent discrepancy between donor and recipient electrolyte levels must be diluted approximately ten times, since the blood volume administered represents only 10 per cent of the recipient's normal blood volume.

Secondly, the body homeostatic mechanisms of the recipient in most instances are operating simultaneously to correct any deviations from normal electrolyte levels that may be produced by the infusion. However, under certain specific circumstances significant abnormalities may be produced.[23]

These include the infusion of too large a volume of blood or the too rapid administration of a reasonable volume, as well as the presence in the recipient of a disease state which adversely affects his capacity to maintain body homeostasis with respect to electrolyte balance.

Change In Shape

A tendency for red cells to change in shape to spherocytes and a progressive osmotic hemolysis are some of the changes reported[26] to occur in stored blood. Other findings[23] have been summarized as follows:

Table 1

			Freshly drawn	10 days old	20 days old
1.	pH		7.1	6.7	6.6
2.	Lactic acid		20	80	125
3.	Potassium mEq per liter	cells	85	75	68
		plasma	5	12	18
4.	Sodium mEq per liter	cells	18	22	30
		plasma	155	152	148
5.	Inorganic phosphorus mg per 100 cc	cells	5	20	25
		plasma	3	5	8

In addition it was judged[24] by various indices that the state of red blood cells after 8 days' preservation in citrated blood was approximately equivalent to that of 18 days' preservation in neutral citrate glucose and 33 days in ACD solution. The latter solution is made by utilizing the following mixture of ingredients per bottle of blood: 2.45 gm dextrose USP, 1.37 gm Na citrate USP, and 0.5 gm citric acid USP added to distilled water to make 120 cc.[1] Its efficacy as a preservative is strikingly confirmed by the above report.

It has recently been reported[25] that hyperkalemia in the absence of clinical signs and symptoms of this abnormality was aggravated in one and induced in two erythroblastotic infants treated with exchange transfusions within the first 36 hours of their lives.

This was stated to be the result of the elevated plasma potassium content of citrated whole blood stored for a prolonged period of time, prompting the recommendation that fresh blood be used in exchange transfusions.

Hypocalcemia Produced

It has also been noted[26,27] that hypocalcemia may be produced during the exchange transfusion of infants, a decreased serum ionized calcium having been noted subsequent to replacement transfusion with citrated whole blood. The hypocalcemia is believed[18,27] to develop as a result of the calcium binding effect of citrate.

The existence of the hypocalcemia has been confirmed by EKG findings.[27,28] Therapy with intravenous calcium gluconate slowly or in divided doses is recommended[18,25–29] during or at the conclusion of the transfusion. The intravenous infusion of calcium gluconate reverses the hypocalcemia.

This has been confirmed by one observer[27] who noted that 10 per cent calcium gluconate relieved the

muscular tremors that occurred after each 100-150 cc of an exchange transfusion was administered. In an exchange transfusion slow administration of 1 cc of 10 per cent calcium gluconate is advised[18] after the infusion of each 100 cc of donor blood, the giving apparatus first being cleaned with 1-2 cc of saline.

However, it is possible for hypercalcemic changes to develop if 1 gm of calcium gluconate is administered within a time interval of less than 5 minutes, and it is recommended, therefore, that this therapy be given over a period of at least 5 minutes.[28]

The threat of the development of hemosiderosis[30,31] as a result of the repeated administration of blood to the same individual must always be borne in mind.

Circulatory Overloading

Overloading the circulation to an extent sufficient to precipitate right heart failure may occur as a result of either too rapid or too large an infusion of blood or improper selection of the substance transfused.[10,17] The reaction which develops may do so during or hours after the completion of the transfusion.[10]

It is characterized by an elevated venous pressure and the development of pulmonary edema which may be fatal within minutes.[10,32] An elevation of the jugular venous pressure should be considered evidence that the circulation is being overloaded by the transfusion and is an adequate indication to stop the infusion.[17]

Prophylactic Precautions

The care with which prophylactic precautions are undertaken against this complication should be directly proportional to the physical condition of the individual patient receiving the transfusion and the particular disease affecting him, although the physician should always be aware of the possibility of this reaction occurring.

There are four types of patients in particular who should be given special consideration if a blood transfusion is proposed: (1) elderly patients, (2) those in congestive heart failure or with a decreased cardiac reserve, and (3) those with uremia or (4) a profound anemia. In the latter instances the red count and hemoglobin may be low, but the patient has a normal blood volume due to a compensatory increase in the plasma fraction.[34]

The administration of a very large additional volume of blood (enough to correct anemia in one transfusion, for example) may easily result in circulatory overloading.

Four Procedures

There are at least four prophylactic procedures which may be undertaken to minimize the chances of circulatory overloading. One is simply the precaution of being certain not to administer more blood than is needed or has been lost.[17]

Another is the slow infusion of the blood that is given, a rate of infusion of less than 40 drops per minute being advocated.[10] A third is the proper selection of the material to be infused. The administration of packed red blood cells often succeeds in accomplishing the object of the transfusion without necessitating the infusion of too large a volume of material.

The fourth prophylactic measure is paying careful attention to the osmolarity of the various materials which may be administered intravenously and the ability of these substances to draw fluid into the circulation from the tissues.[10]

Intra-Arterial Route

At this point mention might be made of the availability of the intra-arterial route of blood infusion, the utilization of which may rapidly restore systolic blood pressure without overloading the right heart.[33]

However, this method of blood administration is rarely justified except in cases of cardiac arrest, because of the imminent danger of the development of such complications as arterial spasm and gangrene of the limb.[34]

The therapy of circulatory overloading as a reaction to blood transfusion is simply the immediate discontinuation of the infusion and institution of the usual treatment of heart failure.[10]

Gravity Method

It has been estimated[17] that the gravity method of transfusion permits the intravenous infusion of only 70 ml of stored blood per minute when it is placed at a height of 4 feet. To provide a greater rate of administration multiple transfusions or delivery of blood under pressure is required.[17]

Physiological studies[35,36] of changes in blood pressure and volume as well as intra- and extravascular fluid indicate that a rapid readjustment in body homeostasis occurs following both the slow and rapid infusion of blood. Providing that the available quantity of blood satisfies a certain minimum requirement, the level of blood pressure was found to be more dependent upon the degree of sympathetic activity than upon the total blood volume.

Rotary Pump

A rotary pump and specially designed straight silver cannula have been described,[17] each of which permits the delivery of 350 ml of blood per minute, the former under approximately fourfold greater pressure. At this rate the normal stroke volume of the normal heart was found to increase only 9 per cent. However, it is warned[17] that this technique may produce circulatory embarrassment in the presence of an abnormal heart. Also, in the presence of vasoconstriction, no more than 70 per cent of the estimated blood loss should be replaced by the technique of rapid transfusion. In addition local venous thrombosis is mentioned[17,37] as a common but not serious sequel of pressure transfusion.

Miscellaneous

Among the miscellaneous group of reactions that may occur as a consequence of blood transfusion is the phenomenon of decreased red cell production.[38–43] Recent experimental evidence[44] from tracer studies on rats confirms this fact, depression of erythropoiesis as measured by a decreased red cell iron turnover having been demostrated following the increase in red cell volume produced by transfusion.

Another report[45] showed that the blood protein composition as determined by electrophoresis approached normal following blood transfusion. However, it is warned[39] that blood is not a rapidly utilized form of protein and cannot completely replace insufficient hemoglobin until the entire nutritional status of the recipient is corrected.

Thrombotic Episodes

The arterial or iatrogenic polycythemia which may result in some recipients of blood transfusions[38] may be responsible for the development of thrombotic episodes[46] and in addition may make the patient a greater anesthetic and surgical risk.[47]

Although it has been reported[33] that no dire results were observed to occur during autotransfusion, in spite of the fact that small amounts of bile, feces, urine, or ascitic fluid contaminated the fresh blood, this procedure should only be employed as a last resort in grave emergencies.[10]

Severe hemolysis of red cells and liberation of excessive quantities of hemoglobin, which occur as a result of the high negative pressure or violent mixing of air and blood necessary in this procedure, endanger the patient.[10]

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Variation on a Theme: The Continuous Lock-Stitch Mark II

By Charles E. Galt, Jr., M. D., Carlsbad, N. M.

While studying the traditional, "blanket," or "running lock-stitch," and envisioning a vertical component on both sides of the incision requiring but a single needle for its execution, it was found that by using a two-strand suture, and locking only one of them, in essentially the same fashion as the original technic, a novel effect could be got.

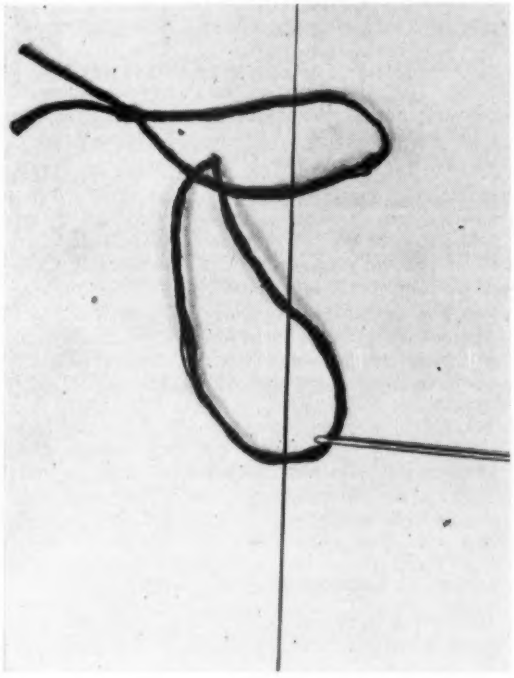


Figure I
Anchoring the Stitch

The result, as pictured, continues to yield a single vertical "arm," but the horizontal feature of the stitch has increased from a single, transverse, to two, oblique strands. It is reasoned that the increased "coverage" of the wound by the two oblique strands, involving no increase in the number of skin punctures, offers an advancement in wound closure requiring essentially no additional surgical effort.

The technic is identical with that followed in the original "blanket stitch," except that with the employment of two strands, the assistant needs not only hold the strand for locking, but also to separate the two strands, insuring that only one is locked.

For the separating of strands, and locking of one, it matters not in what manner each strand is treated during successive stitches. Care must be exercised as with all running stitches to avoid undue tension, and experience with this innovation emphasizes caution against the tendency toward inversion of wound edges.

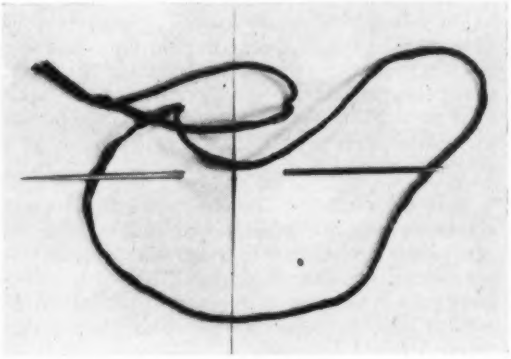


Figure II
Strands Separated and "Locking" One

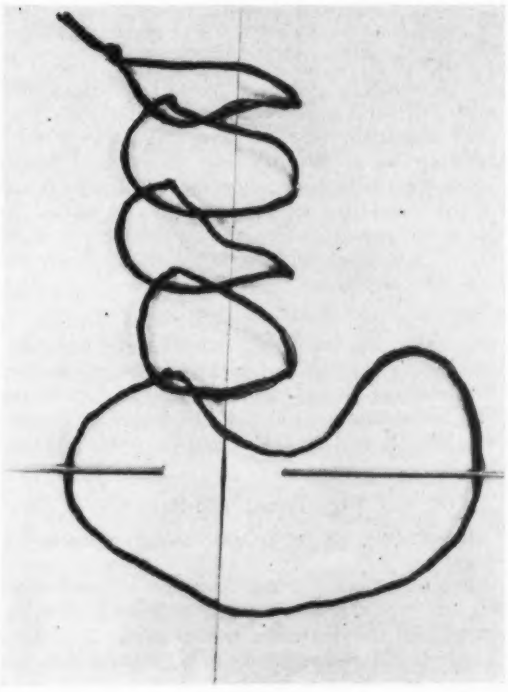


Figure III
The Stitch, Not "in Vivo"

(Continued on Page 199)

MONTHLY CLINICAL PATHOLOGICAL CONFERENCE
EL PASO GENERAL HOSPITAL

January 17, 1957

FREDERICK P. BORNSTEIN, M. D. — EDITOR — CASE NO. 741

PRESENTATION OF CASE BY DR. NATHAN KLEBAN

Dr. F. P. Bornstein:

For this particular pathological conference we are going to have a slight change in procedure. Pathology is concerned with the nature of disease. From that standpoint, any disease is an experiment, an experiment in pathologic anatomy and pathologic physiology, the result in a fatal case being demonstrated at autopsy.

With the advance of medical knowledge, these experiments have been actively interfered with. A disease picture evolves that is completely different from the natural course of the disease. The physician who recognizes the disease from the symptoms at the beginning can change the course of the experiment.

This being the state of affairs, there are many classical pictures of disease that we do not see any more. However, occasionally the disease pure and simple without medical interference will present itself, and for many reasons such a case is worth reviewing.

Dies After Admission

This particular process concerns a 35-year-old woman who came to the hospital and died two hours after admission. She was seen here in 1951 for a fracture and at that time was in excellent health. Three years before admission she noted enlargement of the thyroid but refused to see any physician. As far as we know from the time that enlargement of the thyroid was noted until death, this patient never had any medical advice.

For the last three months she had difficulty in swallowing, she was unable to eat, her eyes protruded, she became nervous and excitable. When she came here she was deeply jaundiced, she had a pulse rate that varied between 100 and 200, her blood pressure was 130/50, and she died within two hours of admission.

Significant Findings

On autopsy the significant findings were as follows:

She was about 150 cm. long and weighed about 45 kg., which is not too well nourished. She was jaundiced, and the neck was swollen. The heart weighed 275 grams, which is an important feature because usually in a thyrotoxicosis we expect cardiac hypertrophy, which was missing. The liver weighed 1100 grams which is rather small, and had a small, shrunken appearance. The thyroid weighed 80 grams and all three lobes were enlarged.

On microscopic examination the thyroid showed the typical picture of an untreated toxic adenomatous hyperplasia (Fig. 1). The microscopic examination of the liver showed extreme vacuolization of the cytoplasm, indicating a severe toxic type of damage.

In summary, we are presenting here a patient who suffered from thyrotoxicosis for three years, remained untreated during the entire time, and finally very rapidly collapsed and died. Clinical interpretation of this case will be given by Dr. Kleban.

Dr. Nathan Kleban:

At the time of two important events of her life this 35 year old young lady visited the hospital briefly and unhappily. On December 27, 1951, she was married. She attended a wedding party, later she suffered an injury to her right knee as the result of an automobile accident, was brought here immediately and less than 24 hours later was transferred to Hotel Dieu.

We have a brief history obtained from a fully conscious and rational patient at the time of her next admission on November 5, 1956. The house staff commendably recognized the urgency of her condition.

Enlargement Of Neck

Beginning three years before death, and two years after her marriage, the patient noted enlargement of her neck, which proved to be thyroid gland on clinical and autopsy examination. The thyroid weighed 80 grams, with normal weight ranging from 16 to 23 grams. She also noted prominence of her eyeballs three years before admission.

Two years and nine months later, her appetite disappeared, swallowing became difficult, and there was approximately a 20 pound weight loss. We presume that either concern about the jaundice or epigastric pain brought her to the hospital, but not until three months later did anyone become sufficiently concerned for her wildly racing motor to seek medical attention, in contrast to the time of her knee injury immediately following her marriage.

Cause Unknown

Just what started this interesting and dangerous endocrine abnormality we do not know. It is generally accepted that thyrotoxicosis begins as a result of excessive thyroid stimulating hormone which in turn may be frequently triggered by psychic stress. It is

assumed that excessive thyroid stimulating hormone or an abnormal circulating protein thyroxin hormone is present which fails to brake the anterior pituitary thyrotropic hormone.

The evidence for this is equivocal. Pyelonephritis had been present in the past for a sufficient length of time to leave the left kidney atrophied and scarred. We may speculate that this might have had something to do with the beginning of her thyrotoxicosis. There was no evidence of active pyelonephritis at the time of autopsy.

Findings on Admission

On admission, physical findings of exophthalmus, tremor, neck swelling, deep jaundice, and epigastric tenderness were noted. The state of nutrition appeared fairly satisfactory to the clinical and pathological examiners. Estimated height was five feet, and weight 99 pounds, which would be a fairly normal weight. Blood pressure was 130/60, exhibiting a widened pulse pressure as one expects. There was nothing to suggest shock, according to the chart.

Her temperature on admission was 98.4. Whether or not this was a terminal drop in temperature or whether she exhibited no pyrexia we don't know. If it was an accurate temperature and not a terminal event, it may be some evidence against a thyroid storm. The apical systolic rate was 200 and irregular. According to one examiner there was a radial pulse deficit, according to another examiner there was not.

Although auricular fibrillation is the most common arrhythmia in thyrotoxicosis, we do not know that it was present here; it could have been a mixed arrhythmia with atrial fibrillation and multi-focal premature systoles, or there could have been other types of arrhythmia. There was no time for an electrocardiogram. The respiratory rate was 36. We do not know if the respirations appeared labored or increased in depth.

Liver Not Enlarged

The liver was not enlarged clinically; we do not know if vascular nevi were present. There is some liver abnormality in all uncontrolled cases of thyrotoxicosis, if a battery of liver function tests is performed. Klatskin of Yale, writing in Schiff's 1956 edition of "Diseases of the Liver" states that the severity of liver abnormality is in direct proportion to the duration and severity of the uncontrolled thyrotoxicosis.

Central necrosis and fatty degeneration were found in 10 out of 11 fatal thyroid storms in one particular series. Jaundice has been reported, but rarely since 1874 when Habersohn first described jaundice in a fatal thyrotoxic crisis. It was present in one half of one per cent of autopsied patients at Lahey Clinic. I did not encounter any reports of thyroid storms or of uncontrolled hyperthyroidism with jaundice which survived the condition.

No Statements

I did not find any statements as to whether liver abnormalities produced in animals by thyroxin were accompanied by jaundice. Means, in his ancient and unrevised, but excellent textbook on diseases of the thyroid gland, considers liver damage a complication, rather than a true part of this particular disease. Portis believed that glycogen and protein depletion lead to an increased susceptibility to liver damage. Bockus quotes Lichtman's 1942 review with the following points; (1) excess thyroid depletes the liver of glycogen; (2) the liver plays a role in the breakdown of thyroxin, which is not really substantiated.

In the experimental animal, when the diet is made deficient in B complex, and the animal is given large doses of thyroid, there is greater liver dysfunction than there is on a diet which is not deficient in B-complex. Bockus adds the factor of chronic passive congestion in the liver secondary to the effect on the heart with congestive heart failure. Klatskin believes that multiple factors are involved in the production of liver changes. There is no supporting evidence that hepatic dysfunction is responsible for thyroid storm.

Anabolic Hormone

Physiologically, the thyroid hormone is anabolic, and is essential for growth and maturation, but is catabolic in excessive dosage. The circulating thyroid hormone is believed to be thyroxin. The absorption and utilization of glucose, and the break-down of glycogen, are accelerated by thyroid. Oxidation is speeded up, a function which dinitrophenol also has. You may recall that this is the substance which was used some years back to promote weight loss.

It caused many deaths from bone marrow depression, so that its recognized legitimate use fell by the wayside. While oxidation is speeded up, generation of energy-rich phosphate bonds is not correspondingly enhanced, so that there is increased burning of fuel, which is not translated into a correspondingly increased availability of energy.

An increased load is thereby placed on the heart and on the liver, and on other tissues, without availability of increased energy to perform that work. Thyroid and cancer cells are unaffected. While thyroxin has been located in the mitochondria of cells, and while it is known that the concentration of 13 or more enzymes is affected by thyroxin, its exact mode of intracellular metabolic action is unknown.

Fulminating Increase

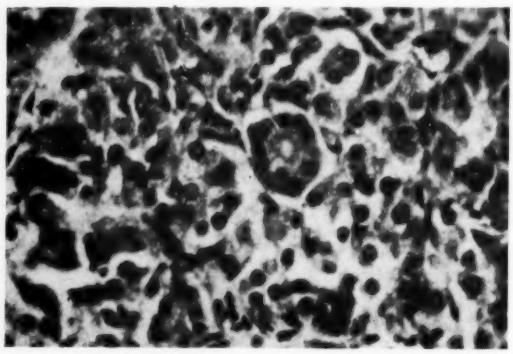
Thyrotoxic crisis or storm demonstrates a fulminating increase in all of the signs and symptoms of thyrotoxicosis. It used to be most commonly seen postoperatively in inadequately prepared patients, and it's rarely, if ever, seen now, post-operatively. Irritability, delirium or coma, pyrexia, vomiting, diarrhea, tachycardia, are usual manifestations.

Adrenal cortical insufficiency may accompany thyroid storm. Experimentally induced thyrotoxicosis increases greatly the body requirements for adrenal cortical hormones. The use of cortico-steroids seems to increase the survival rate in the human in thyrotoxic crisis.

The patient who is being presented tonight was not in hepatic coma at the time of her admission to the hospital. This rules out hypoglycemia or ammonia intoxication or other unknown factors causing death in hepatic insufficiency.

Congestive heart failure was not sufficiently severe to cause death, although microscopically there was evidence of congestive heart failure in the lungs as well as in the liver. There was no evidence of shock, according to the chart.

Tracheal compression sufficient to decrease arterial oxygen saturation or increase carbon dioxide was not noted clinically.



Typical Toxic Goitre

Additional Factor

Certainly an additional factor making for what one would expect to be respiratory embarrasment in this patient was the general effect of thyrotoxicosis on muscle, in this case involving the intercostal muscles and the other muscles of respiration. Esophageal compression may have played a part in this patient in diminishing nutritional intake beyond a critical point, leading to increased hepatic and cardiac disorder.

Diminished potassium stores may have sensitized the heart to a fatal arrhythmia, or conversely, excessive potassium released from cellular break-down, may have caused cardiac arrest. Since death was sudden, my opinion is that death occurred either from asystole, or from ventricular fibrillation. She sought medical assistance possibly a day or two too late for her.

The use of hypertonic glucose, oxygen, digitalis preparation for the purpose of increasing the A-V block in the presence of a rapid auricular fibrillation, the use of adrenal cortical hormones, and intravenous iodide, might have saved this woman's life if it could have been administered 24 to 48 hours earlier.

The PR Indoctrination . . .

(Continued from Page 189)

(**n**) Medical Public Relations.
(**o**) Functions of Grievance Committee.
(**p**) Cause and Prevention of Lawsuits.
(**q**) Doctors and News Media.
(**r**) Civic Responsibilities of the Physician.
(**s**) Coroners, Osteopaths and Chiropractors.
(**t**) Consent for Operation.
(**u**) Autopsies.
(**v**) Sterilization Procedures.
(**w**) Consultations.
(**x**) Expert Testimony.
(**y**) Emergency Medical Call Plans.
(**z**) Group Disability Insurance.
(**zz**) Tax Deadlines.
(**zzz**) Numerous Other Publications.

In some States, to emphasize that the new member is about to join a Society that looks far beyond its nose, literature is handed out describing additional roles of the State Society.

These cover

1. A Medical Defense Fund — Prosecution of Alleged Malpractice
2. A Medical Benevolence Fund — for Indigent Doctors and Families
3. An Education Fund — For Children of Less Fortunate M.D.s.
4. M. D. Placement Service
5. Administrative Guidance to County Societies
6. Program Planning
7. Legal Counsel for Basic Problems in Profession

One can readily see therefore that the P-R Indoctrination Program has very respectable goals and ambitions. It touches doctor-doctor relations, doctor-patient, and doctor-hospital relations as well as those with the Medical Society and Community.

Concluding Statements

Some have said that an efficient, nation-wide P-R Indoctrination Program could forestall socialized medicine. I am not at all sure of that; for it seems to me that if socialized medicine comes, it will do so on the heels of some economic catastrophe entirely beyond our control. But if that day of servitude ever arrives it seems reasonable to believe that if we are fully organized and united at last, we might have a good deal to say about the *terms* of our employment. We should be able to resist all efforts to force on us some completely unfair and unreasonable health plan. If getting organized achieved nothing more than this, it would be worth working for.